

ART. X.—*A Revision of the Genus Pultenaea, Part II.*

By H. B. WILLIAMSON.

(With Plates VI. and VII.)

[Read 9th September, 1920.]

PULTENAEA HUMILIS, BENTH.

(Hook, f. Fl., Tasm., i., 91).

A shrub with flowers like those of *P. plumosa*, from which species it differs in having bracteoles with broad stipules, and flowers axillary in short leafy spikes at or near the ends of the branches, not in terminal heads. The common Victorian form is low and diffuse, with large flowers, the calyx lobes being much longer than the tube, lower ones much narrower than the upper, all hirsute with long hairs. Bracteoles are linear-lanceolate, ciliate, as long as the calyx lobes, and fixed at the base of the tube. The ovary is glabrous, with a brush of long white hairs at the top, and the style is much dilated. Grampians, Geelong, Ballarat, etc., Vic.

It appears to be confined to the southern half of Victoria.

P. HUMILIS, var. *GLABRESCENS*, var. *NOVA*.

Variat foliis fere glabris, floribus paulo minoribus saepe glabris.

From the normal this differs in having almost glabrous leaves, and somewhat smaller flowers often quite glabrous. Specimens from Grampians and Creswick, with narrow leaves have fallen wrongly under var. *angustifolia* of *P. parviflora*, Sieber, p. 132, Fl., Aust. The Grampians specimens are scantily invested with long hairs on the calyx and bracteoles, while those from Creswick have hairs only on the branchlets and pedicels. Goulburn River specimens (W. F. Gates), have larger, glabrous leaves and hairy branchlets and pedicels. Those from Sale, Vic., (T. A. Robinson), and Bairnsdale (T. S. Hart), have shorter leaves, broader towards the summit, and smaller flowers. All the specimens

agree with *P. humilis* in having the long thickened reddish style and glabrous ovary with tuft of hairs.

Benalla, N. E. Sale, E. Victoria. Creswick and Grampians, Victoria.

P. SUBSPICATA, Benth.

(Fl., Aust., ii., 137).

A small shrub with the appearance of *P. vestita*, and the narrow leaved form of *P. humilis*, having leaves up to half-inch, narrow-lanceolate, concave, granular-rough, and slightly hairy. The calyx has narrow subulate lobes, rather longer than the tube. It is easily distinguished from *P. humilis* by its broad bracteoles with a central point fixed under the calyx tube; and from *P. plumosa* by its flowers being axillary, not in terminal heads.

L. George, and Braidwood dist., N. S. W. There is a specimen collected in Gippsland, Vict., by Howitt.

P. VILLIFERA, Sieb.

(D.C. Prod. ii., 111).

This species has been confused with *P. humilis*, and so has been wrongly recorded for Victoria. In *P. villifera* the calyx is not more than 3 lines long, usually 2 lines, and the bracteoles are scarious, ovate-lanceolate, while in *P. humilis*, the calyx is 4 to 5 lines long, with a very short tube, and the bracteoles are very narrow, and as long as the calyx lobes.

The leaves of *P. villifera* are prominently veined beneath, with marginal veins also, and have longer petioles, especially the upper ones.

Port Lincoln, Encounter Bay, Onkaparinga, S.A. Jervis Bay, N.S.W.

P. INVOLUCRATA, Benth.

(Fl. Aust. ii., 138).

This may be confounded with *P. villifera* which it resembles in general aspect, but it may be easily separated by its singly terminal flowers, and remarkably small calyx, scarcely more than 1 line, which is quite concealed by the broad bracteoles. The leaves are scarcely petiolate, and have no marginal vein.

Mt. Lofty, S.A.

P. MUELLERI, Benth.
(Fl. Aust. ii., 138).

This species is close to the last named, having solitary terminal flowers, and a small calyx, $2\frac{1}{2}$ lines, almost concealed by the broad bracteoles; but it is not a villous plant, and the petioles are very short. Leaves are prominently 3-veined below, and are almost pungent.

Baw Baws, and S. Gippsland, Skipton, Vic. Specimens from Skipton have setaceous stipules and bracts.

P. PROSTRATA, Benth.
(Hook, f. Fl. Tasm. i., 89).

This resembles *P. Muelleri* in its singly terminal flowers, but it has linear, terete leaves resembling those of *P. laxiflora* and *P. tenuifolia*.

Its nearest affinity is *P. tenuifolia*, from which it is easily distinguished by its constantly single flowers with silky calyx, and numerous closely imbricated bracts.

Wimmera dist. Portland Vic. Ross, Tas. Tattiara, S.A.

P. SETULOSA, Benth.
(Fl. Aust. ii., 132).

Small shrub with linear, terete or trigonous leaves, channelled above, mucronate, 3 to 4 lines long, scarcely spreading. Stipules are rather broad, appressed, reddish, with long fine points.

Flowers are axillary, nearly sessile, crowded near the ends of the branches. Bracts none. Bracteoles linear, on the base of the calyx tube, provided with stipules. Calyx pubescent, lobes about as long as the tube, fine pointed. The fine points to stipules, leaves and calyx-lobes give it a peculiar aspect.

Broad Sound, Q.

Specimens from Mt. Lindsay, Q. (Cambage, 1909), have calyx rather smaller and stipules less setular.

P. VESTITA, R.Br.
(Benth. Fl. Aust., ii., 132).

Small shrub with young branches quite covered with long closely imbricate reddish stipules, each pair united almost to the top. Leaves linear, or linear-lanceolate, shortly mucronate.

Flowers in dense leafy terminal heads. Floral leaves and bracts with large, broad stipules. Bracteoles under the calyx, large, stipular, scarious with pointed lobes, and central long-ciliate point.

In calyx and bracteoles it resembles *P. elliptica*, and *P. subspicata*, but differs from the former in having much narrower leaves, smaller petals, and longer bracteoles; and from *P. subspicata* in having much longer bracteoles, and flowers terminal.

Sherratt's Brook, Esperance Bay, W.A. Port Lincoln, Salt's Creek, S.A.

P. STROBILIFERA, Meiss.

(Pl. Preiss., i., 75).

A shrub to 1½ feet with terete wrinkled leaves about 3 lines long, and flowers in dense ovoid heads, with numerous broad, shortly-toothed bracts covering the calyx. Bracteoles are linear, hirsute, with long hairs, and are fixed under the calyx, which has long, narrow and acuminate lobes.

The style is short, thick and hooked.

Stirling Ra., Upper Hay R., Sources of Blackwood R., W.A.

P. ERICIFOLIA, Benth.

(Lindl., Swan Riv. App., 13).

A shrub, heath-like in aspect, much resembling *P. strobilifera* in calyx lobes, bracteoles and style, but its leaves are longer, and its bracts are spreading at the top, deeply trifid, with subulate central and broad lateral lobes. The long setular calyx lobes and bracteoles are fringed with long hairs, giving the heads a fuzzy appearance.

King George's Sound, Swan R., Blackwood R., W.A.

P. VERRUCULOSA, Turcz.

(Bull. Mosc., i., 278).

A species resembling the last two, but having fewer bracts, and broader bracteoles, all much shorter than the calyx. The leaves are glabrous.

King George's Sound. Great Bight, W.A.

Var. *pilosa*, Bth., sprinkled with long hairs, and with bracts rather larger and more numerous, and petals dark red.

Cheyne's Beach, Oldfield, W.A.

Var. *brachyphylla*, Bth., leaves short and thick, sometimes shortly mucronate, and flower heads smaller.

P. RADIATA, sp. nova.

Fruticulus erectus parvus, ramulis, radiatis pubescentibus, foliis lineari-cylindricis supra canaliculatis tuberculatis incurvatis 8-10mm. longis patenti-hispidis, stipulis subulatis, floribus sessilibus in capitula terminalia confertis, bracteis paucis lato-ovatis ciliolatis, bracteolis bracteis similibus calycem omnino cingentibus eoque fere acquilongis infra basin calycis insertis, calyce glabro margine ciliato 7 mm. longo, lobis acuminatis inferioribus tubum aequantibus superioribus conjunctis usque supra medium, vexillo bis longiore quam calyx; ovario sericeo-villoso apice barbato stylo brevi (vix 3mm. longo) uncinato; legumine non viso.

This plant resembles *P. ericifolia* and *P. verruculosa*, var. *pilosa*, in general aspect.

1.—*P. ericifolia* has very distinctive flowers, having very long bracts with a long central ciliate lobe, and linear bracteoles as long as the calyx lobes, both the latter being ciliate with long hairs.

2.—*P. verruculosa* has bracts few, short, entire, or shortly two lobed, and bracteoles only about 2 lines long, and linear, hairy, trigonous leaves.

3.—This species has very broad bracts and bracteoles, the latter completely surrounding the calyx, longer than the tube, and the upper calyx lobes are much connected, with their lobes scarcely divergent. The hooked style is shorter than that of *P. verruculosa*, var. *pilosa*, being scarcely more than a line in length, with the hairs of the ovary reaching almost to the top.

Its nearest affinity appears to be *P. Bauerleni*, F.v.M., a N.S.W. species which has a calyx of the same size and shape, and bracteoles also large, but somewhat narrower, larger and broader stipules, longer, thicker, mucronate, long-petiolate leaves, granular without hairs, and a silky ovary tapering to a long subulate style. The ovary of this species is silky, with long hairs reaching almost to the top of the very short hooked style.

In National Herbarium, Vic., from Busselton, W.A., 1870 A. and E. Pries, among specimens of *P. verruculosa*, var. *pilosa*.

P. ADUNCA, Turcz.

(Bull. Mosc., i., 79).

A species with terete leaves scarcely $\frac{1}{2}$ inch long, with often a small recurved point. The calyx is uniformly silky and has the

lower lobes narrower and longer than the tube, the upper ones being broad and united almost to a single emarginate lobe.

Bracteoles are linear, silky, and fixed below the calyx, and the style is short, thick and hooked.

"Drummond's 5th Coll. n. 66," W.A..

Apparently rarely gathered.

P. NEUROCALYX, Turcz.

(Bull. Mosc., i., 281).

A W.A. shrub somewhat like *P. subumbellata* in foliage, habit and absence of stipules, but at once known by its bracteoles and calyx lobes, which are striate with scarious ciliate margins. The bracteoles are under the calyx, ovate-oblong, three nerved. Calyx lobes are almost equal, broad, blunt, and 3 to 5 nerved. The style is short, thick, and hooked. The plant appears to be one of the connecting links between *Pultenaea* and *Phyllota*. Examination of ripe seeds may show that it should be placed under the latter genus.

Oldfield, Mt. Barren, Robertson's Brook, W.A.

P. JUNIPERINA, Labitt.

(Pl. Nov. Holl., i., 102).

A plant with pungent leaves varying much in width, and flowers two or three together towards the ends of the branches, with lanceolate bracteoles inserted under the calyx. Specimens from Tasmania and the Grampians have narrow spreading leaves, concave or conduplicate, with a wide base, and pedicels about a line long with a prominence at the base.

Var. LATIFOLIA, Benth. (*P. cordata*, Graham), a form with broad leaves almost cordate at the base, tapering to a pungent point, darker green below with a prominent midrib.

R. Tamar, Tas.

P. JUNIPERINA, var. PLANIFOLIA, var. nova.

Variat foliis longioribus latioribusque planis vel paululum concavis.

This form has leaves from $\frac{1}{2}$ inch to 1 inch long, lanceolate-oblong to oblong, from slightly incurved at the margin to quite

flat, partly rusty-red below, the prominent midrib below being prolonged into a straight pungent point. Flowers are usually in twos at the ends of very short branchlets, appearing almost axillary.

This is the plant mentioned by Bentham, p. 135, "Clarence River, Beckler," as var. *mucronata* of *P. flexilis*, but it differs from *P. flexilis* in having bracteoles inserted under the calyx, not upon it, and having a villous ovary and subulate stipules. Beckler's specimens exactly match those from Gibbo Ra. Vic., determined by Mueller as *P. juniperina*. Specimens from Pine Mt., N.E. Victoria (C. French, jnr.), having flat leaves up to 1 inch long must be referred to *P. juniperina* for the reasons just stated.

Dandenong Ra., N.E. Victoria, and N.S.W.

P. RIGIDA, R.Br.

(Benth., Fl. Aust. ii., 130).

A species very close to *P. juniperina*. Bentham gives for it, "Leaves lanceolate, concave or conduplicate, flowers distinctly pedicellate," but the Grampians specimens of *P. juniperina* also possess these characters.

If we admit the validity of the species, we must do so on the following grounds. Leaves conduplicate, very rigid, sessile, flowers dark red, on rather longer pedicels, and pod ovoid, not oblique-ovate, shorter than that of *P. juniperina*. I have not seen the pod, or the Memory Cove specimens.

The leaves show sometimes a tendency to reticulate venation as in *P. aciphylla*, and they have not the distinct yellowish petioles with the protuberance at the base.

Memory Cove. (R. Brown); Kangaroo I., (O. Tepper), S.A.

P. ACEROSA, R.Br.

(Benth., Fl. Aust., ii., 131).

A species with terete or trigonous leaves, channelled above, rigid, pungent short-pointed, slightly recurved, divaricate on the lower branches, and nearly $\frac{1}{2}$ inch long. Flowers are dark coloured, crowded, surrounded by bifid, subulate bracts, and have oblong bracteoles with subulate points.

Coast of S. Australia.

Var. ACICULARIS, var. nova.

Variat foliis strictis longe mucronatis, floribus minus confertis, petalis minus rubris.

From Mt. Lofty, S.A. Has been placed by Bentham under *P. acerosa*. Mueller's MS. name for it was *P. acicularis*. It differs from *P. acerosa* in habit and in colour of flowers, which contain less red, and the leaves have long straight points.

The flowers are much less crowded, often appearing in twos as in *P. juniperina*, and having bracteoles and calyx closely resembling those of that species.

It appears to be a connecting link between *P. acerosa* and *P. juniperina*.

P. COSTATA, sp. nova.

Frutex diffusus circiter 1m. altus, ramulis pilosis, foliis, ovato-lanceolatis 7-9mm. longis rigidis recurvatis glabris concavis pungenti-mucronatis subter prominenter supra levius quinquenerviis inflorescentiam versus confertis, stipulis longe subulatis patentibus, floribus sessilibus in capitula terminalia confertis, bracteis multis lato-ovatis acuminatis, bracteolis bracteis, similibus lato-ovatis subulatis infra calycem affixis, calyce 8-9mm. longo sparse villosa lobis subaequilongis subulatis, vexillo vix longiore quam lobi calycis, ovario sericeo-viloso, stylo sublato; legumine non viso.

Specimens of this plant occur in herbaria variously placed under *P. styphelioides*! and *P. juniperina*, var. *latifolia* (*P. cordata*, Graham). Only by a casual inspection could it be placed under the former. From the latter it differs considerably, as it has crowded sessile flowers, with a large calyx almost concealed by bracts. As these and the calyx are long-subulate, the inflorescence has a bristly appearance. The leaves are prominently 5-veined while in *juniperina* they are 1-veined.

Its nearest affinity is *P. acerosa* which it resembles in inflorescence, calyx and bracts, but from which its remarkable 5-veined leaves keep it distinct.

Grampians, N. of Mt. William, Vic. C. French, jnr., C. Walter, J. W. Audas and others.

P. LAXIFLORA, Benth.

(Fl. Aust., ii., 133).

A shrub with narrow-linear leaves, often with a blunt recurved tip, minutely pubescent when young. Flowers are in terminal

heads, at first surrounded with broad bracts which soon drop off, and then the pedicels appear often 2 to 3 lines long and turn downwards. Bracteoles are linear-lanceolate, fixed on the calyx tube, are provided with broad stipular lobes, and are inclined to be leafy. The calyx and pedicels are silky pubescent.

Grampians, Wimmera, Vic.

Var. PROCUMBENS, F.v.M.

A MS. name, under which Mueller placed the S.A. specimens. Leaves broad, almost flat in some specimens, cuneate, recurved at the end in others.

Lighter green above with a distinct midrib below. Some specimens show less pubescence, and more slender calyx lobes and bracteoles.

Onkaparinga, Clarendon, S.A.

Var. PILOSA, var. nova.

Variat floribus confertioribus, pedunculis brevioribus, calyce valde vestito.

Specimens from "N.W. of Nhill," Vic., (D'Alton) are in an early stage, and show bracts rather larger than the normal. The calyx and bracteoles are invested with long silky hairs.

To this variety also must be referred specimens from Mt. McIvor, (Mueller), and Bendigo, (Paton), which have been passing under *P. tenuifolia*.

Their flowers in terminal heads, their large calyx, and leafy stipular bracteoles separate them from that species.

From the normal they differ in having flowers often more crowded on short branchlets. The pedicels do not appear to lengthen much, and the calyx is somewhat larger, and is invested with long hairs.

Northern part of Victoria.

P. VILLOSA, Willd. (Spec. Pl., ii., 507).

Under this name a number of very divergent forms have been included, which can scarcely be admitted even as varieties.

I have taken Sieber's specimens, "n. 421," and "Fl. Mixt. 518," as typical, agreeing with Bentham's description. Shrub pubescent, or villous, rust coloured when dry. Leaves usually oblong, or somewhat cuneate, concave, or with incurved margins,

tubercular or hirsute underneath. Flowers solitary in each axil, but sometimes forming short terminal leafy racemes. Pedicels short and slender. Bracteoles inserted on the calyx tube near its base, linear, with often one or two setae in their axil. Calyx $1\frac{1}{2}$ to above 2 lines long, lobes acuminate, longer than the tube, the two upper ones broad, falcate, united to the middle, lower ones narrow. Smith, in Trans., Linn., Soc. 9, 248, says, "A dense bushy shrub, with numerous short leafy branches, and copious, axillary solitary flowers. The appendages (bracteoles) grow from towards the base of the calyx, and are longer than the tubular part, having a more leafy appearance than in any other species of *Pultenaca*."

Hobart, Tasmania; Port Jackson district to South Queensland. The Victorian forms will be dealt with later.

P. FERRUGINEA, Rudge.

(Trans. Linn. Soc. xi., 300, t. 23; D.C. Prod. ii., 111.)

Bentham, p. 134, included this under *P. villosa* as var. *latifolia*. The leaves are obovate and vary from 2 to 3 lines in Blue Mountain specimens, to 4-5 lines in specimens from the seaboard. This character, together with its large long appressed stipules like those of *P. elliptica*, its large flowers and peculiar bracteoles, separate it well from *P. villosa*. The calyx is very large, often 5 lines long, its upper lobes being falcate, joined below the middle, and the lower ones are very narrow, much longer than the tube. Bracteoles are lanceolate, almost as long as the calyx lobes, fixed at the base of the tube, and provided with broad scarious stipules, both calyx and bracteoles being invested with long soft hairs. Flowers are axillary, crowded in terminal and sub-terminal leafy racemes. The ovary is glabrous except for a tuft of long white hairs on the summit. The style is long and distinctly compressed.

Blue Mts., Port Jackson, Guise Head, etc., N.S.W., "n. 420 Sieber," in Nat. Herb., Melb.

P. FERRUGINEA, Rudge, var. *DEANEI*.

(*P. Deanei*, R. T. Baker, Proc. Linn. Soc., N.S.W., xxii., 438, 1897.)

This plant is simply a large form of *P. ferruginea*, having rather larger leaves, up to 6 lines long, scarcely as hairy as the

normal plant. With the broadening of the leaves the obscure marginal veins of *P. ferruginea* become more distinct, and further from the margin, giving the leaves a tri-nerved character. The leaves are obovate-cuneate, not inclining to oblong as shown in the plate accompanying the description, and the bracteoles are fixed at the base of the calyx tube. not high adnate as the plate shows.

It is a much more robust and showy plant than the normal *P. ferruginea*, and grows, according to Mr. H. Deane, only on the sandstone of the Hawkesbury series. Intermediates occur, however, at Guise Head, (R. Brown), Berowa and other places.

Peats' Ferry (H. Deane); Gosford (R. T. Baker).

P. HISPIDULA, RBr.

(Benth., Fl. Aust., ii., 133.)

In habit resembling *P. villosa*, but with much smaller flowers which are sessile in small terminal heads, instead of being axillary and solitary. The bracteoles also are quite different, oval-oblong. The calyx is scarcely more than a line long, with very short lobes, and the ovary is villous, instead of being hairy only at the top. Port Jackson, N.S.W.

Specimens from Gembrook, Grampians and other parts of Victoria, hitherto passing under *P. villosa* must be referred to this species.

P. PARVIFLORA, Sieber.

(D.C. Prod. ii., 111.)

This is a form very near to *P. villosa*, differing only in its almost sessile flowers, which are rather crowded in the upper axils, and its smaller leaves almost glabrous.

The leaves are more cuneate than those of *P. villosa*, and in the South Creek specimens, N.S.W. (J. H. Maiden), are slightly notched at the summit. Calyx, bracteoles, and ovary as in *P. villosa*.

The form which it most closely approaches is Rudge's *P. polygalifolia*, which Bentham rightly included under *P. villosa*, and from which I can separate it only by the size and shape of its leaves. It may yet have to be reduced to a var. of *P. villosa*.

C. Byron, Port Jackson, South Ck. N.S.W.; Ipswich, Q.

It does not occur in Victoria.

P. GRAVEOLENS, Tate.

(Trans. Roy. Soc., S.A., vii., p. 68.)

A species with small oblong to linear leaves, and axillary flowers. Mueller evidently placed it as a form of *P. villosa*, but it can be separated from that species by its smaller calyx, peculiar hyaline and viscid stipules, and bracteoles, and its peculiar odour, which is described by Tate as like that of "spirit contaminated with animal matter." To some it has a rich aromatic odour, some times resembling that of cream cheese. It comes between *P. villosa* and *P. hispidula*, and is distinguished from the latter in having axillary flowers, and very small bracteoles.

Uraidla, Mt. Lofty, S.A.; Meredith, Vic., (S. Johnson).

P. VROLANDI, Maiden.

(Vic. Nat. Vol. 22, p. 98.)

Resembling in general aspect some forms of *P. villosa*, but easily distinguished by its cup-shaped, involucre-like, viscid bracteoles, fixed under and quite surrounding the calyx, which has short and broad lobes. In the Nat. Herb., Melb., are specimens of this plant from Pine Mt., N.E. Vic. (C. Walter, 1891), the leaves of which are 5 lines long.

Strathbogie, Vic., Nov. 1904 (A. W. Vroland).

P. TRIFIDA, J. M. Black.

(Proc. Roy. Soc., S.A., xxxiii., 224, 1909.)

A S.A. species with small, concave, ovate, petiolate leaves, ending in a short bristle point. The calyx is small with almost equal lobes. It has a general resemblance to *P. ferruginea*, but the flowers are very different, having lobes of the calyx almost equal and subulate, and its trifid bracteoles serve to easily distinguish it from all its co-geners.

The bracteoles are distinctly trifid, the outer lobes not being acceptable as stipules, as in the case of *P. plumosa*, *P. ferruginea*, and *P. laxiflora*.

Snug Cove, and Cape Borda (Griffiths, 1908). Cygnet R., (1886, O. Tepper, Vic. Nat. Herb.).

P. WEINDORFERI, Reader.

(Vic. Nat., Vol. 22., p. 51.)

A showy species resembling a form of *Dillwynia ericifolia*, which may account for its being overlooked, although growing abundantly so near to Melbourne. It has linear concave leaves, crowded, and scarcely spreading, and long, appressed stipules. The calyx resembles that of *P. humilis*, var. *glabrescens*, its nearest affinity, in being most glabrous, and in having calyx lobes longer than the tube, and linear bracteoles fixed near the base of the tube, but it differs from that species in having more equal calyx lobes, and a quite glabrous ovary and style.

Wandin, Vic., 1903 (G. Weindorfer). In the Nat. Herb. from Dandenong Range, with no date or collector's name.

P. VISCIDULA, Tate.

(Proc. Roy. Soc., S.A., vii., p. 69.)

A shrub about 3 ft. high, resembling *P. mollis* in foliage, but less hairy, and having flowers in small, not in dense, heads, with very small bracts and bracteoles. The latter are ovate, and are fixed under the calyx tube.

The growing ends of the branchlets are "clothed with a viscid exudation." Tate.

Under shade of *Eucalyptus corynocalyx*, Karatta, Stunsail, Boom R., S.A., Kangaroo I., (Tate).

P. FASCICULATA, Benth.

(Benth. Fl., Aust. ii., p. 139.)

A prostrate or diffuse alpine shrub with foliage like that of *P. tenuifolia*, slightly silvery in appearance. Flowers are axillary and solitary, with a single broad-lobed bract. Bracteoles are lanceolate-acuminate, and are set on the calyx tube. The calyx is silky pubescent, with acuminate lobes as long as the tube, the upper ones broader.

Highlands of N.S.W., Tas., and Vic. 2000-5000 ft.

P. CAMBAGEI, Maiden and Betche.

(Proc. Linn. Soc., N.S.W., xxx., 308.)

=*P. subumbellata*, Hk. var. *cambagei*.

A shrub differing from *P. subumbellata* only in leaves and habit. The leaves are somewhat narrower, and show little differ-

ence of colour below. The description in the Fl. Aust. of *P. subumbellata*, "shrub either low and erect, or taller and straggling, with branches virgate, rather slender, terete, pubescent when young," includes M. & B.'s description of this plant, so that the species seems to have been founded on the difference in leaves only, a rather unwise proceeding, especially as some specimens of *P. subumbellata* show leaves with both pages equally green.

Torrington, New England, N.S.W. (Cambage, 1907.)

P. TENUIFOLIA, RBr.

(Bot. Mag., t. 2086, Benth. Fl. Aust. ii., p. 139.)

A small diffuse shrub with villous branchlets, and leaves narrow-linear, or terete, 2 to 4 lines long, concave or channelled above, generally straight and pointed, almost fascicular, and invested with minute appressed hairs.

Flowers are sessile, solitary, or two together at the ends of the branchlets, and are surrounded by broad bifid scarious bracts, concealing the calyx. Bracteoles are ovate, and are fixed under the calyx, longer than the tube. The calyx is about two lines long, with almost equal lobes, acuminate, and slightly longer than the tube. In Port Lincoln specimens the lobes are invested with long white hairs.

S. coast of Vic., S.A., and W. Australia.

Var. *Glabra*, Benth, almost glabrous. Wimmera Dist., Vic.

P. RECURVIFOLIA, sp. nova.

Frutex erectus parvus, ramis pubescentibus, foliis 3-4 mm. longis angustis recurvatis apicem versus latioribus margine involutis, supra vix apertis infra leviter carinatis, glabris vel minutissime puberulis, stipulis acuminatis latiusculis, floribus paucis minimis prope apicem ramulorum axillaribus, bracteis nullis, bracteolis ovatis calyce brevioribus infra eum affixis, calyce 2 mm. longo glabro, lobis brevibus latisque minute ciliolatis superioribus paululum latioribus, vexillo 5 mm. longo fusco, alis pallentibus, ovario sericeo-villoso, stylo subulato, legumine, 3 mm. longo, 2 mm. lato.

This plant was included by Bentham under *P. tenuifolia*, RBr., as var. *recurvifolia*.

Its small recurved leaves, axillary flowers, and the absence of bracts separate it well from that species. Its flowers also

are much smaller, and the calyx lobes shorter than the tube. The bracteoles, however, resemble those of *P. tenuifolia*.

Its nearest affinity appears to be *P. villosa* from which it differs in its narrow, recurved, leaves, and different shaped calyx, which is more like that of *P. hispidula*, which, however, has flowers terminal in small clusters.

Cape Nelson, near Portland, Vic. (Allitt.)

P. ECHINULA, Sieber.

(D.C., Prod. ii., 112; Benth., Fl. Aust. ii., 127.)

Shrub with older branches denuded of leaves, and tuberculate or echinate with the remains of their petioles. Leaves 6-7 lines long, crowded on the younger branches, much incurved, linear, terete, channelled above, tuberculate, and, towards the inflorescence, invested with scattered long hairs. Stipules long-subulate. Flowers in dense heads surrounded by crowded leaves, with few bifid bracts with spreading subulate lobes.

Bracteoles inserted under the calyx, short, broad at the base, tapering to a sharp point, minutely ciliate. Calyx glabrous, minutely ciliate, lobes nearly equal, acuminate. Keel dark coloured. Ovary glabrous, with a few long hairs at the summit.

The National Herbarium contains a single specimen of the type referred to in Benth., Fl. Aust., p. 127. "Sieb. n. 384. New Holland." It does not appear to have been gathered since.

P. DIVARICATA, sp. nova.

Frutex erectus fere glaber, foliis lineari-cylindricis confertis supra canaliculatis tuberculatis mucronatis divaricatis incurvatis strictis vel deflexis floralibus puberulis, stipulis subulatis, floribus circiter 6 sessilibus in capitula terminalia congregatis, bracteis breviter bifidis pubescentibus, bracteolis linearibus carinatis dorso paululum pubescentibus 2 mm. longis ad basin calycis affixis, calyce 4 mm. longo pubescente, lobis obtusis inferioribus tubo aequilongis superioribus eo paulo brevioribus, petalis omnibus flavis, ovario sericeo-villoso, stylo subulato, legumine oblique ovato 5 mm. longo, 4mm. lato, planiusculo pilis longis parce vestito.

This plant, from the Blue Mts., N.S.W., which has passed as *P. echinula*, Sieber, appears to be the plant mentioned by Bentham—Fl. Aust. ii., 127—in the note as R. Cunningham's specimens. It is quite a distinct species, differing from *P. echinula* in having

shorter leaves varying from slightly incurved to somewhat recurved, some specimens showing almost straight leaves, while *P. echinula* has regularly, much incurved, leaves.

Flower heads are not so dense, bracts are not divided into long spreading subulate points, and the calyx is pubescent without acuminate lobes. The bracteoles are linear, slightly keeled, and hairy, while *P. echinula* has glabrous bracteoles, triangular, acuminate, at the base somewhat clasping the pedicel. The petals are all yellow, and the ovary is silky villous, not glabrous as in *P. echinula*. The pod is nearly 3 lines long, and 2 lines broad, oblique ovate, somewhat flat, and scantily beset with long hairs.

Its position is between *P. Bauerleni*, F.v.M., and *P. echinula*. It bears much resemblance to the former in leaves, stipules, and inflorescence, but its calyx is very different, and the bracteoles are very small, whereas those of *P. Bauerleni* are broad and nearly 4 lines long.

Wentworth Falls, Blue Mts. J. H. Maiden, Oct., 1918. J. H. Camfield, Nov., 1898.

EXPLANATION OF PLATES VI. and VII.

- (a) Calyx lobes x 2.
- (b) Bracts x 2.
- (c) Bracteoles x 2.
- (d) Ovary and style x 2.

CORRECTIONS AND ADDITIONS.

On p. 214 of Vol. xxxii. of the Proceedings—

For *Pultenaea petiolaris*, Cunn. read *Pultenaea polifolia*, Cunn., and add: Port Jackson, Blue Mountains, Bondi Dist., New South Wales; Mitta Mitta, Victoria (S. F. Clinton).

For *Pultenaea polifolia*, Cunn. read *Pultenaea petiolaris*, Cunn., and add: Rockingham Bay, Burnett R., Brisbane R., Queensland.